

Product Datasheet

Catalase RNAi

H00000847-R01-20nmol

Unit Size: 20 nmol

Store at -20C. Avoid freeze-thaw cycles.

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H00000847-R01-20nmol

Catalase RNAi

Product Information	
Unit Size	20 nmol
Concentration	Concentration is not relevant for this product. Please see the protocols for proper use of this product.
Storage	Store at -20C. Avoid freeze-thaw cycles.
Buffer	DEPC-treated Water

Product Description	
Gene ID	847
Gene Symbol	CAT
Species	Human
Specificity/Sensitivity	catalase (CAT), mRNA
Notes	This product is produced by and distributed for Abnova, a company based in Taiwan.

Product Application Details	
Applications	RNA Inhibition, RNAi sequence position
Recommended Dilutions	RNA Inhibition, RNAi sequence position
Application Notes	This RNAi causes protein knockdown.

Publications

Tsai IC, Pan ZC, Cheng HP et al. Reactive oxygen species derived from NADPH oxidase 1 and mitochondria mediate angiotensin II-induced smooth muscle cell senescence. J Mol Cell Cardiol 2016-09-01 [PMID: 27381955]

Masgras I, Carrera S, de Verdier PJ et al. Reactive oxygen species and mitochondrial sensitivity to oxidative stress determine induction of cancer cell death by p21. J Biol Chem. 2012-02-06 [PMID: 22311974]



Procedures

Protocol specific for Catalase RNAi (H00000847-R01)

Optimization of the transfection condition

Generally, transfection optimization could be achieved by transfecting cells with siRNAs targeting endogenous genes such as Lamin A/C and GAPDH and then analyzing their expression by RT-PCR or Western blotting. Alternatively, assays using reporter genes including GFP and luciferase, which are faster and more quantitative than Western blot, facilitate time-consuming optimization experiment.

We isolated SiHa, HeLa and SK-OV-3 clones stably expressing Firefly Luciferase (FLuc) by transfecting those with a FLuc expression plasmid (hLuc/pcDNA3), and culturing in the presence of G418. With a siRNA/chimera targeting FLuc, these clones have been used to optimize siRNA/chimera transfection condition as well as selection of suitable transfection reagent for each cell lines. In order to avoid interfering endogenous miRNA network, it is important to keep the siRNA/chimera transfection concentrations as low as possible. We recommend using siRNA/chimera at a concentration lower than 5 nM, and where possible, at 1 nM.

Cell culture

It is important to select a cell line suitable for your RNAi experiment. Some cell lines are resistant to siRNA/chimera transfection. Further, a character of a cell line sometime varies among laboratories, which might be caused by repeated passages and cross contamination. We strongly recommend obtaining cell lines with good references from ATCC and other cell banks and to make a large cryostock. Thaw cells before each series of experiments and culture for 1 -2 weeks. After several experiments, cells should be discarded to avoid long-term passage.

1) One day before transfection, plate cells at a density of 5×10^4 to the 4th - 1×10^5 to the 5th cells per well in a 6-well plate containing 2 ml of DMEM medium containing 10% FCS without antibiotic (e.g. Streptomycin, penicillin, G418).

2) Immediately after seeding cells, culture vessels should be shaken on bench back and forth and then from side to side several times slightly in a rough manner, resulting in even cell distribution on culture surface. In case of a 96-well plate, shaking does not improve cell distribution, or even cause centering cells in each well.

3) On the day transfection, the cell culture should be 30% confluency. Please make sure that the CO₂ incubator is installed horizontally because cell distribution in the culture vessel often influences RNAi efficiency.

Note: The cell density seeded is proportional to the culture surface area.

PBS washes immediate before transfection are unnecessary. siRNA/chimera transfections siRNA/chimera should be stored at 4 degrees C and at -20 degrees C in the case of dried and soluble forms respectively, but should not be refrozen for reuse. Small aliquots (10 μ L) should be made.

Efficient RNAi can be achieved by using commercially available transfection reagent such as Lipofectamine 2000 and Lipofectamine RNAiMAX. From our experiences, we noticed that Lipofectamine RNAiMAX is superior to Lipofectamine 2000 to the extent of cytotoxicity and RNAi efficiency, and that cytotoxicity of Lipofectamine 2000 varies lot by lot. (Transfection protocol of Lipofectamine RNAiMAX can be obtained from the Invitrogen Website.) However, for cotransfection of siRNA/chimera and plasmid DNA, Lipofectamine 2000 should be used.

To achieve the maximal RNAi activity and lowest cytotoxicity, optimization of Lipofectamine 2000 volume is essential. Dilute siRNA/chimera with Opti-MEM I reduced serum medium (Invitrogen) up to 50 μ L and vortex for a few seconds Dilute appropriate amount of Lipofectamine 2000 by Opti-MEM I reduced serum medium to 50 μ L and vortex for a few seconds For SiHa and SK-OV-3 cells, dilute 1.0 -1.6 μ L of Lipofectamine 2000 with Opti-MEM I reduced serum medium to 50 μ L. For HeLa cells, diluted 0.2 - 0.4 μ L of Lipofectamine 2000 with Opti-MEM I reduced serum medium to 50 μ L. Combine diluted siRNA/chimera and Lipofectamine 2000, vortex for a few second, incubated at room temperature for 20 min, then added to a 2-ml culture. The amount of Lipofectamine 2000 should be changed in proportion to the culture medium volume.





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Limitations

This product is for research use only and is not approved for use in humans or in clinical diagnosis. RNAi are guaranteed for 3 months from date of receipt.

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